

Plantations and social conflict: exploring the differences between small-scale and large-scale plantation forestry

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Received: 14 August 2006 / Accepted: 22 December 2006 / Published online: 3 February 2007
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Abstract Commercial afforestation of agricultural land is often associated with social conflict over the perceived environmental, economic and social impacts of the plantations being established. One of the most common solutions suggested to this conflict is a shift from large-scale afforestation by companies and government agencies to small-scale afforestation by individual landholders. Small-scale afforestation by farmers is argued by many to have more positive and fewer negative impacts than large-scale afforestation by non-farmers. However, few studies have examined whether small-scale afforestation is associated with less social conflict than large-scale afforestation. This paper reports results of a recent study that compared afforestation conflicts in two regions: County Leitrim in the Republic of Ireland and the Great Southern region of Western Australia. Considerable afforestation has occurred in both regions in recent decades, and both have also experienced major shifts in the scale and ownership of the plantations being established over time. For both regions, establishment of small-scale farm forest plantations was found to be associated with considerably less social conflict than establishment of large-scale plantations by non-farmers. Some tentative explanations may be given for this pattern, based on comparisons between the two case study regions.

Keywords Small-scale afforestation · Large-scale afforestation · Social conflict

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Introduction

Tree plantations supply a rapidly growing proportion of global wood supplies,¹ and rates of plantation establishment have risen rapidly in many countries in recent years. While estimates made in different years are not directly comparable,² the FAO (2001) estimated that the global plantation³ estate expanded by 143.4 M ha between 1990 and 2000, compared to only 25.8 M ha between 1980 and 1990. Afforestation rates have increased for a range of reasons, including pressure to reduce logging of natural forests, and the quality and consistency of the wood and paper products that can be produced from plantations (Cossalter and Pye-Smith 2003; Kanowski 2005). This increased rate of afforestation has often been accompanied by conflict over the environmental, social and economic impacts of plantations. Disputes and concerns about afforestation have been documented in more than 35 countries covering most, if not all, regions in which commercial afforestation has occurred on a large scale in recent decades.⁴

Concerns expressed about afforestation cover a wide range of topics. For example, some groups have expressed concerns over the perceived social impacts of plantation expansion on rural communities, while others are primarily concerned about the perceived environmental impacts of particular types of afforestation (for example, impacts on water quality and quantity, chemical use, and diversity of species). For detailed descriptions of key topics over which conflict typically occurs, see FAO (2002) and Cossalter and Pye-Smith (2003).

Many people argue that conflict tends to occur over large-scale afforestation more often than small-scale afforestation. For example, Mutch and Hutchison (1979, p. 111) found that conflict over afforestation occurred mostly when afforestation involved 'the purchase and planting of whole farms' in Scotland, rather than only part of the farm. Similar results were found in Australia by Tonts et al. (2001) and Schirmer (2002). Based on this, some argue that conflict over afforestation can be addressed by shifting from large-scale afforestation undertaken by companies and government agencies, to small-scale afforestation undertaken by individual landholders. The latter is usually described as involving integration of afforestation with

¹ While the world's estimated 186.73 M ha of plantations constituted only 5% of global forest cover in 2000, they supplied an estimated 35% of global roundwood supplies, forecast to rise to 44% by 2020 (FAO 2001).

² The comparability issues are due to differences in definitions used by the FAO when gathering data about plantations at different times (FAO 2001).

³ FAO (2001) defined plantations as: 'Forest stands established by planting or/and seeding in the process of afforestation or reforestation. They are either: (i) of introduced species (all planted stands), or (ii) intensively managed stands of indigenous species, which meet all the following criteria: one or two species at plantation, even age class, regular spacing.'

⁴ Concerns and conflict have been documented in nations and regions including Argentina, Australia, Bolivia, Brazil, Cambodia, Cameroon, Chile, Colombia, Ecuador, Ethiopia, Finland, India, Indonesia, Israel, Italy, Kenya, Laos, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Noumea, Palestine, Paraguay, Portugal, Republic of Ireland, Senegal, South Africa, Spain, Tanzania, Thailand, United Kingdom, United States of America, Uruguay, Venezuela, Vietnam (see for example Friends of the Earth n.d., Le Heron and Roche 1985; Lowe et al. 1986; Tompkins 1986; Mather and Murray 1988; Neeson 1991; Cohen 1993; Groome 1993; Lara and Veblen 1993; Pereira 1993; Christensen 1994; Marchak 1995; Selby and Petajisto 1995; Carrere and Lohmann 1996; Robbins 1998; Spinelli 1998; WRM 1999; Garcia Perez and Groome 2000; Linnard 2000; Williams 2000; Elands and Wiersum 2001; Tewari 2001; Tonts et al. 2001; Wilkinson and Drielsma 2001; FAO 2002; Lang 2002; Schirmer 2002; Barlow and Cocklin 2003; Cossalter and Pye-Smith 2003).

traditional agricultural activities in what is commonly termed ‘farm forestry’ or ‘agroforestry’ (e.g., Petheram et al. 2000; Tonts et al. 2001, Schirmer 2002).

Small-scale afforestation by farmers is argued by many to have more positive and fewer negative impacts than large-scale afforestation by non-farmers. The benefits of farm forestry/agroforestry compared to larger-scale afforestation are argued to include⁵: more equitable sharing of the benefits of afforestation; maintaining rural populations; maintaining traditional agricultural activities; environmental benefits such as increasing biodiversity of flora and fauna on agricultural properties; and diversification of farm income (CFPLM 1989; Cossalter and Pye-Smith 2003). As commented by An Taisce (1990), ‘[f]arm forestry, in particular, has the potential to generate real environmental, social and economic benefits for rural communities if planned and managed properly’. Tewari (2001, p. 349), meanwhile, argued that ‘[t]he promotion of smallholder tree-growers is necessary to meet the aspirations of many stakeholders/actors to have a fair share of the cake.’

However, few studies have examined whether small-scale afforestation is less commonly associated with social conflict than large-scale afforestation, despite many recommending small-scale forestry as a solution to concerns held about afforestation.

This paper reports results of a study that compared afforestation conflicts that have occurred in two regions: Co Leitrim in the Republic of Ireland and the Great Southern region of Western Australia (WA). The research method is described, and the differences between small-scale and large-scale afforestation defined. This is followed by a brief history of afforestation in the two case study regions, focussing in particular on patterns in the scale of afforestation. Differences found in conflict over small-scale and large-scale afforestation are then identified and discussed.

Research Method

The overall goal of the study was to identify the factors associated with successful change in different types of conflict over afforestation. The term ‘successful change’ was used in preference to alternatives such as ‘resolution’, ‘management’ or ‘transformation’ of conflict, all of which may be interpreted as implying that the goal of addressing conflict is to end all disagreement—whereas successful change may refer to a shift in conflict enabling more productive use of disagreement.

Several dimensions of successful change in conflict were identified as an initial step in developing a framework for data collection and analysis, consistent with Stern and Druckman’s (2000) suggestion that multiple criteria should be used for evaluating different elements of successful change in conflict. Conflict was considered to have changed ‘successfully’ if (a) conflict participants with differing viewpoints agreed the conflict had changed successfully, (b) goals of conflict participants had been partially or completely met; (c) frequency of reporting of conflict had

⁵ Note that while small-scale and large-scale afforestation are often argued to have different social impacts, some recent research suggests that large-scale afforestation in some Australian regions has not been associated with an increased rate of loss of rural population or employment in rural areas (Schirmer et al. 2005a, b). It is important to emphasise that the impacts discussed in this paper (both positive and negative) are *perceived* impacts, and no attempt is made in this document to assess the validity of the differing perceptions held by different groups about the positive and negative impacts of plantations.

fallen or the nature of reporting changed to indicate a lessening of intensity of conflict.

For the purposes of the study, 'afforestation' was defined as *the establishment of stands of trees on land which previously had few or no trees growing on it, while the term 'plantation' was defined as a stand of trees that was artificially established by humans, e.g., by planting seedlings* (after Helms 1998; FAO 2000). Unless otherwise stated, only afforestation/plantation management for the purpose of commercial wood production was examined. Conflict was defined as *underlying disagreement causing concerns and/or disputes over afforestation, usually evidenced by protracted disagreement between, or expressions of concern by, individuals or groups* (after Yarn 1999).

Change in afforestation conflicts was explored via longitudinal qualitative research in the two case study regions. The two case study regions were selected because:

- They had experienced considerable afforestation over time, including periods of relatively rapid and relatively slow afforestation;
- The types of afforestation had changed over time, particularly *who* undertook afforestation and the *scale* of individual plantations. There was also some change in the tree species established;
- Conflict had occurred over afforestation, and the topics and intensity of conflict had varied over time, allowing comparison of factors associated with the presence and absence of conflict; and
- The regions were sufficiently similar to allow comparison across case studies. Sufficient similarity was defined as similarity in institutional systems, including government, private sector and non-governmental organisation structures.

In each of the case study regions, data were gathered on afforestation and associated concerns and conflicts over time. The time period studied in each case study region encompassed as far as possible the period during which rapid afforestation has occurred (1960s to present in Co Leitrim, and 1980s to present in WA).

The primary data sources utilised were:

- Semi-structured interviews conducted with those involved in or observing afforestation and conflict over afforestation in the two case study regions (23 interviews in Co Leitrim, and 24 interviews in WA). Those interviewed included representatives of the farming sector, rural residents not involved in farming, the plantation sector, local and State government, environmental and other non-governmental organisations (ENGOS and NGOs), and those involved in facilitating or mediating processes attempting to address conflict;
- *Local media articles*. All articles discussing afforestation in the *Leitrim Observer*⁶ (1968–2000; 582 articles identified) and the *Albany Advertiser*⁷ (1986–2002; 471 articles identified) were identified and analysed; and
- Documents discussing afforestation from a range of other sources, including local government, plantation companies and ENGOS.

⁶ The *Leitrim Observer* is the only local paper for Co Leitrim and provides the primary source of local news in the region.

⁷ The *Albany Advertiser* is the primary source of local news in the Great Southern region of Western Australia.

Data were analysed using media and discourse analysis. All data sources were thematically coded, and different data sources compared to identify overlap and variance in reports of the same events and interpretation of their outcomes. Coding themes were developed from initial reading of a sub-set of media articles, interview transcripts and other data from each case study region. These were then tested on a set of different data to see how comprehensive they were and, after revision, used to code different data sources. The coding process remained open-ended, with actors/topics/events added and coding categories refined as new issues emerged in the process of data analysis. This flexible approach was needed because a wide variety of issues and actions occurred in each case study region over time, not all of which emerged in the sample of data used to develop the initial set of codes. It followed the practice adopted by authors including Bengston and Fan (1998), Koopmans and Statham (1999), and Rucht and Niedhardt (1999).

In each case study region, multiple conflicts were identified over afforestation. Individual conflicts were defined as identifiable topics acted on by particular clusters of actors, which were demonstrably separate to other topics and groups of actors. In total, 14 conflicts were identified—six in Co Leitrim and eight in WA. Each of the 14 conflicts was analysed to identify whether the conflict had changed successfully or unsuccessfully at various points in time, using the criteria identified above. Theories on factors affecting both occurrence of conflict and continuation of conflict were examined to identify whether conflicts did consistently change successfully in association with these hypothesised factors.

One of the theories examined was whether differing patterns of conflict occurred in association with small-scale and large-scale afforestation, and whether changes in the scale of afforestation in a region tended to be associated with shifts in the type and intensity of conflict. The results of the study relating to this theory are explored in this paper. It is important to recognise that many factors may affect the occurrence and continuation of conflict over afforestation; this paper focuses deliberately on the differences between small-scale and large-scale afforestation to highlight the key differences found in the study. Other results from the study are referred to only where they have bearing on the discussion of issues relating to scale of afforestation.

When examining theories about the influence of scale of afforestation, the first issue was that of defining ‘small-scale’ versus ‘large-scale’ afforestation. Distinguishing between these concepts was the first stage of analysis, and required uncovering and unpacking the characteristics of the various individuals and groups typically associated with different scales of afforestation in the two case study regions. Following this, the extent to which small-scale and large-scale afforestation had occurred in each case study region over time was identified as part of a detailed history of afforestation and associated social conflict developed for each case study region. This enabled subsequent analysis of whether particular types of conflict occurred in association with different scales of afforestation.

Defining Small-scale and Large-scale Afforestation

Rather than impose an arbitrary definition of ‘small-scale’ and ‘large-scale’ afforestation, discourse analysis was used to identify how these concepts were defined by different groups in the case study regions. When the language used by interview respondents, in media articles and in other documentation on afforestation was

analysed, some interesting issues emerged regarding the way the scale of afforestation was identified in both case study regions. Specific terms were associated with either 'small-scale' or 'large-scale' afforestation in both case study regions. In general:

- Small-scale forestry was referred to as farm forestry (both regions), sharefarming (WA), agroforestry (WA), and integrated forestry (WA). In both regions these types of plantations were almost always described as being established and/or managed on properties owned by farmers;
- Large-scale forestry was referred to as private forestry, plantations, blanket forestry (Co Leitrim), wall-to-wall or fence-to-fence plantations (WA), amongst other terms. These terms were mostly used when describing afforestation undertaken by businesses or government agencies other than farmers.

The key distinguishing feature between small-scale and large-scale forestry in both case study regions was ownership. Small-scale afforestation was almost always identified as an activity undertaken by farmers or other individual landholders, while large-scale afforestation was generally identified as being undertaken by companies or government agencies specialising in plantation establishment and management. The physical area of individual plantations was of less importance as a distinguishing feature. However, the use of terms such as 'blanket forestry' and 'wall-to-wall' or 'fence-to-fence' plantations suggests that plantation scale was still partly defined based on the physical scale of individual plantations. In all cases, though, these terms were only used when describing afforestation undertaken by businesses or agencies, and were not used when describing afforestation by farmers.

While ownership of plantations was found to be the primary feature distinguishing between small and large-scale afforestation at the individual plantation scale, the discourse used did indicate that distinctions were also made between small and large-scale forestry at a broader landscape scale. Landscapes that had large areas of plantation 'blanketing' the area were generally distinguished from landscapes with small patches of plantation interspersed amongst traditional agricultural land uses; the former areas were considered to have experienced large-scale afforestation and the latter small-scale.

In summary, small-scale afforestation was conceptualised relatively similarly in both case study regions as afforestation controlled by individual landowners, which may be relatively scattered in an agricultural landscape. Large-scale afforestation was conceptualised as afforestation in large single blocks that cover a reasonable proportion of a landscape (although the extent of area covered was not clearly conceptualised), undertaken by businesses or agencies rather than individual landholders. It is not possible to define a physical size of plantation that was considered 'small' versus 'large' in the two case study regions, with the term 'scale' referring more to the scale of operations of the owner of the plantation, than the size of any individual area afforested.

Brief History of Afforestation in County Leitrim

County Leitrim is a small county in the north-west of the Republic of Ireland. At 159,003 ha, it covers only 2.2% of Ireland (Western Development Commission 2004). The forested area was small in the early 1900s, but gradually increased after

the state began efforts to afforest land in the county. By 1987, 8.92% of Leitrim was forested; by 1992 the area covered was 11.11% and by 1997 12.9% (Forest Service 2000). Most plantations are coniferous, including Sitka spruce (*Picea sitchensis*) and other conifer species. Over the past two decades a wider range of species has been planted, including non-coniferous species.

Afforestation in its modern forms began in the county from around the 1940s, when the state began to acquire properties considered marginal for traditional agricultural purposes and establish plantations on them. However, many farmers believed the land being acquired and afforested by the state was viable for agricultural use, and also believed the state was paying unfairly low prices for land. During the 1970s, several properties were picketed by farmers in an attempt to prevent their afforestation. From the 1980s, private companies were the primary drivers of afforestation, utilising funds from superannuation companies and private investors to purchase land and afforest it. Within a year of the private sector starting to undertake afforestation in the county protests occurred over a number of issues, many centring on a strong belief that the land being afforested should have been made available to local farmers. Large areas of farmer-based (small-scale) afforestation only began to take place from the late 1980s, when the government introduced annual premium payments for farmers who afforested. These payments were additional to existing grants, which covered much of the cost of establishment.

Figure 1 summarises the area of afforestation in Co Leitrim from the 1960s through to 2000, covering the time period examined in the study. The dramatic

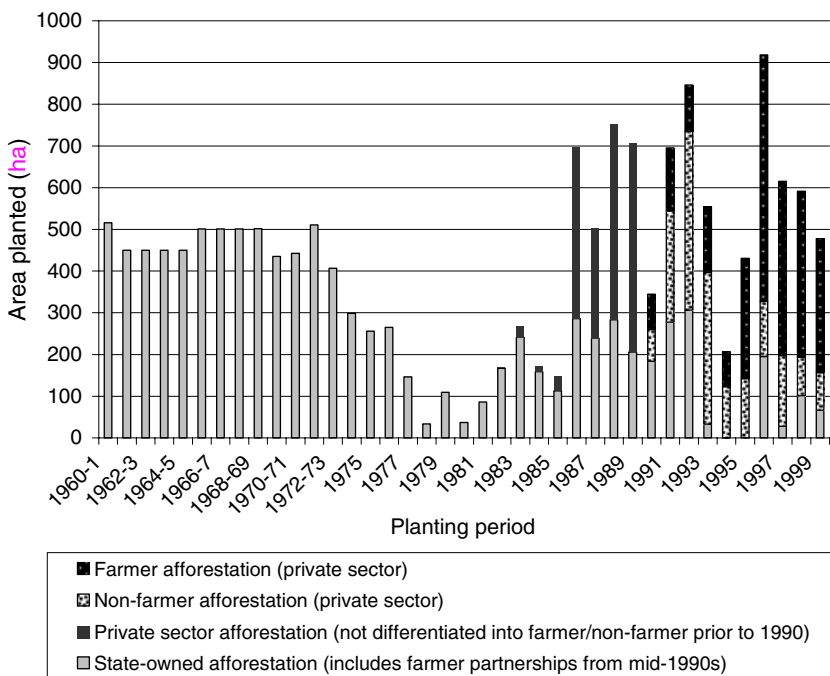


Fig. 1 Afforestation by ownership type in Co Leitrim, 1960–1999. *Source:* Forest Service (2000) and Dail Eireann (various years). Note that during the 1970s the financial year on which afforestation was reported changed twice (in 1973 and 1975); however, this has a reasonably small impact on the calculation of area planted per year

change in the agents undertaking afforestation from the 1980s can be clearly seen, with the state rapidly reducing its afforestation and private sector groups—including considerable numbers of farmers in the 1990s—undertaking more afforestation.

Brief History of Afforestation in the Great Southern Region (WA)

The Great Southern region is a group of 12 local government areas located in the south of the Australian state of Western Australia. Clearing of natural vegetation to create farmland occurred in the region from European settlement through to the 1980s, when regulations were introduced preventing large-scale land clearing. Almost no commercial afforestation occurred in the region prior to the late 1980s, although during the 1980s many landholders planted trees on their properties for environmental purposes, particularly to reduce the risk of salinity.

Commercial afforestation began in the region in the late 1980s, and most plantations are of *Eucalyptus globulus* (bluegum) grown on a 10–12 year rotation to produce woodchip. Initially, almost all afforestation was small-scale, taking place under what were termed ‘sharefarm’ arrangements. Under these arrangements, farmers entered into a partnership with the Department of Conservation and Land Management (CALM) (the state forestry agency). CALM established a plantation on part of the farmer’s property, paying an annual lease fee for use of the land or sharing eventual profits from sale of the trees with the landholder (or some combination of both).

In the early 1990s, several private companies, funded by Japanese companies or by private individuals investing through prospectus schemes, began establishing plantations under similar sharefarming arrangements. The annual rate of afforestation increased relatively rapidly. From the mid-1990s, some plantation companies began purchasing properties directly to establish plantations, and it became increasingly common for entire properties—rather than only parts of properties—to be leased or purchased for plantation establishment. Increasingly, plantation establishment was more large than small-scale. Afforestation rates peaked in the year 2000 when a change in tax law forced some companies effectively to plant two years worth of planned planting in a single year (AFG 2000). Since 2003, rates of establishment have risen again.

Figure 2 summarises the trend in afforestation in the Great Southern region of WA from 1991 to 2001. Available statistics do not separate afforestation based on ownership (e.g., farmer or non-farmer) or size of individual planting. Most of the plantations established by the government were also established on private land, on behalf of Japanese investors. The point at which the scale of planting and land ownership arrangements shifted substantially is therefore indicated separately in Fig. 2, based on the reports of interview respondents about changes in the nature of afforestation over time.

Differences in Conflict Over Small-scale and Large-scale Afforestation

Several approaches were used to identify if small-scale and large-scale afforestation were associated with different types or intensity of conflict in the two case study regions. First, the views of interview respondents were identified. Second,

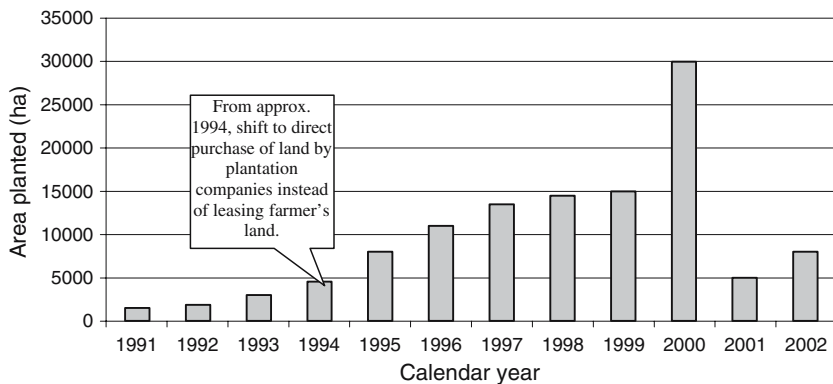


Fig. 2 Afforestation in the Great Southern region of WA, 1991–2002. *Source:* Timber 2002 (2002)

terminology used by respondents, in media reports and in other documents, was examined to identify whether conflict tended to be associated with particular small or large-scale afforestation. Finally, differences in occurrence of particular topics of conflict in relation to small and large-scale afforestation were identified.⁸

The first analysis, examining views of interviewees, supported the belief commonly cited in the literature (as identified earlier in this paper) that small-scale afforestation is less commonly associated with conflict than large-scale afforestation. Over half of all interviewees, when asked about factors affecting levels of conflict, stated without prompting that the scale of afforestation affected the scale and intensity of conflict that occurred over afforestation. These included interviewees representing a wide range of views from highly positive to highly negative perceptions of plantations. All of these interviewees agreed that small-scale afforestation was encouraged by most of those who criticised large-scale afforestation, and as a result tended to be less associated with conflict over afforestation. Other interviewees when prompted agreed with these views; no interviewees expressed dissenting perceptions.

The second analysis of terminology further supported the hypothesis identified in literature on afforestation conflict that small-scale forestry is generally not associated with social conflict. Tables 1 and 2 show the number of media articles utilising terms relating to different types of tree planting in the two case study regions. Reports of conflict over afforestation were almost exclusively associated with terminology used to describe large-scale afforestation, while articles discussing small-scale afforestation did not refer to it in association with discussion of conflict over afforestation. When various topics of conflict were examined, however, some topics were identified that occurred across both small-scale and large-scale forms of afforestation, while others only occurred over large-scale afforestation.

⁸ A fourth approach was also utilised, in which the overall intensity of conflict as measured by intensity of media reporting was recorded and compared to the scale of afforestation occurring. However, this approach was difficult to utilise because the shift to small-scale or large-scale afforestation in each case study region typically occurred at the same time as a range of other changes which are equally likely to have influenced the path of conflict over afforestation, while the first three approaches allowed more meaningful identification of the influence of the scale of afforestation.

Table 1 Comparison of media articles referring to small-scale and large-scale afforestation in the *Leitrim Observer*, 1968–2000

	Number of articles reporting positive perceptions	Number of articles reporting negative perceptions
Number of articles referring to large-scale afforestation	32	110
Number of articles referring to small-scale afforestation	103	3

Concerns over the social impacts of afforestation were exclusively associated with large-scale afforestation in both case study regions, as can be seen in the following three quotes where negative social impacts were consistently associated with the use of terms referring to large-scale afforestation:

Farmers, consultants and businesses are warning of the potentially devastating social and economic consequences of whole-farm tree planting in the region (Coatney 1997, p. 1, 2).

It has long been the policy of the Albany Zone of WAFF [WA Farmers Federation] ... that tree farming integrated with conventional farming and grazing land had much merit and little downside, whereas ‘whole farm’ or ‘horizon to horizon’ plantings of single species of trees, has many disadvantages (both social and commercial) ... (Davies 1998, p. 6).

Eighty percent of all afforestation in County Leitrim since 1990 has been carried out by Coillte, the state backed forestry company and other non-farmers, Mr John Winters, Chairman Leitrim IFA has claimed in a statement slamming the Minister for Agriculture for allowing Coillte to ‘swallow up’ huge amounts of farmland for forestry. ‘... IFA is demanding that the Minister ensures that if forestry is to take place in an area that it is not to the detriment of local people’, said Mr Winters. (LO 24/7/1996, p. 5)

In both case study regions conflicts related to differing perceptions of social impact tended to occur less during those times when small-scale afforestation dominated new plantings. Concerns over environmental impacts of afforestation, however, were not exclusively linked to large-scale afforestation. In both case study regions, examples were identified where concerns had been raised by ENGOs about the environmental impacts of small-scale afforestation—for example, in the WA case study a dispute arose over the environmental impacts of

Table 2 Comparison of media articles referring to small-scale and large-scale afforestation in the *Albany Advertiser* 1988 to March 2002

	Number of articles reporting positive perceptions	Number of articles reporting negative perceptions
Number of articles referring to large-scale afforestation	167	99
Number of articles referring to small-scale afforestation	132	5

the establishment of a share-farm plantation in the late 1980s. In addition, the language used by ENGOs when criticising environmental impacts of plantations often referred to afforestation in general, rather than singling out particular forms or ownership of afforestation. For example, Coone (1994, p. 4) reported that '(e)nvironmentalist groups are becoming increasingly vocal over the steady encroachment of sombre blocks of Sitka spruce on the Irish countryside, and are demanding that a greater variety of tree species be planted and that planning controls be introduced for new plantations.'

Some of the literature produced by those criticising the environmental impacts of plantations tended to use terms associated with large-scale afforestation, even when referring to plantations that might be classified as farm forests. Additionally, many ENGOs actively supported development of small-scale forestry; for example the WA Conservation Council were quoted in *Farmers Weekly* (2000) as giving support '... for properly done plantations, which are integrated with traditional farming ... We support alley farming for example, rather than fence to fence plantations, plus a move towards mixed species ...'.

The findings presented above show that, with the exception of some conflict over environmental impacts of plantations, expansion of small-scale afforestation was associated with considerably less conflict than the expansion of large-scale afforestation in both the case study regions. Potential explanations for this are discussed below.

Discussion

Both the literature and data from two case study regions support the argument that small-scale afforestation is associated with considerably less conflict than large-scale afforestation. The next obvious question is to ask why this is the case. What aspects of small-scale afforestation make it less contentious than large-scale afforestation? The results of this study indicate that the scale of *ownership* of plantations, more than the *physical* scale of individual plantations, may explain differences in levels of conflict. Afforestation undertaken on land owned by farmers was consistently associated with positive perceptions in both case study regions. This appears to have been the case even where the area of plantation established by a farmer was as large as the area of plantation typically established by a non-farmer such as a government agency or private company.

In the WA case study region, it was common for plantation companies to enter into sharefarming arrangement with farmers, establishing a plantation on part or all of the farmer's property. Although involving considerable activity by the plantation company in establishing and managing the plantation, this form of afforestation was less commonly associated with conflict than the outright purchase of a property by an afforestation company. Similarly in Co Leitrim, it has become common for plantation companies to be contracted by farmers to undertake many plantation establishment and management activities on the farmer's land—but it is again relatively uncommon for this to be associated with conflict over afforestation, whereas direct purchase of land by afforestation companies is still associated with concern.

In interviews conducted for the study, three key explanations were given for the preference for farmer-controlled ('small-scale') versus non-farmer controlled ('large-scale') afforestation:

- Most people described farmer-controlled afforestation as involving the establishment of only a proportion of a property to trees, with the remainder of the property still used for traditional agriculture. This was believed to involve less disruption of rural social and economic relations than the afforestation of entire farming properties;
- Ownership of rural land by private corporations was associated in critics' views with depopulation of the countryside, and a shift from family-based land management to depersonalised, factory-like productive use of land; and
- Three critics of afforestation reported that they did hold some concerns about afforestation undertaken by farmers, but generally chose not to express them publicly, for two reasons. First, they felt that farmer-based afforestation had fewer negative impacts than non-farmer afforestation. Second, each felt they couldn't criticise people, who they often knew personally, for doing something which might benefit them financially and assist them in staying on the land.

The importance of land ownership remaining in the hands of farmers appears central to explaining the difference in conflict over small and large-scale afforestation. This emphasis on ownership appears to reflect the common cultural conceptualisation of rural landscapes as 'belonging' to farmers, and the ways in which power relations in rural communities have for many generations been structured around traditional agriculture (see for example Woods 2005). Large-scale afforestation challenges many of the cultural norms held in and for rural regions, particularly through shifting control of land to organisations which interact with rural land in different ways to what is considered the 'traditional' farm family.

The rural ideal of a landscape managed by farming families, with each family living on the property they manage, is being challenged on a range of fronts in both case study regions—and certainly not only by the expansion of large-scale afforestation. In both Ireland and Western Australia, farmers have had to continually increase the scale and efficiency of their agricultural enterprises in recent decades in order to remain viable. This has often involved farmers purchasing additional properties to expand their farm. This shift has led to a rapid decline in the total number of farmers in both case study regions. In both regions, farming families increasingly earn off-farm income, and many farmers are 'part-time', earning income in a job off-farm as well as maintaining a farm enterprise. New residents are shifting into rural regions to live on what are often termed 'lifestyle' properties (Hollier et al. 2004; Western Development Commission 2004; Barr et al. 2005; Schirmer et al. 2005a). These continuing changes have led to the argument that the family farm-based rural economy is a thing of the past. Conflict over large-scale afforestation is one of the ways in which some members of rural communities resist these challenges to the rural ideal.

Another explanation for the lack of conflict over small-scale afforestation is aesthetic preferences for viewing landscapes in which plantations are integrated with traditional agricultural activities. This view was expressed by some interviewees in this study; however, the discourses identified in this study suggest that the preference for farmer control of land is deeply embedded as a cultural norm in both case study regions—to the extent that many critics of large-scale afforestation believed there was no need to explain why small-scale, farmer-based forestry was preferable to

large-scale forestry, and found it difficult to detail why they had this preference in interviews conducted for the study.

Concluding Comments

The findings of this study support the argument that small-scale afforestation is less commonly associated with social conflict than large-scale afforestation. However, the importance of defining the characteristics used to distinguish between small and large-scale afforestation when making comparisons is apparent. An examination of the discourses associated with afforestation in the two case study regions of Co Leitrim and the Great Southern region of WA reveals that in both regions small-scale afforestation is identified with afforestation undertaken by farmers, while large-scale afforestation is identified with non-farmers. The physical scale of individual plantations appears to be less important than the scale of the entity that owns the land being afforested. The distinction based on ownership suggests that conflict over large-scale afforestation may in part be a result of the multiple changes to social and economic relations occurring in the two regions studied, which are both experiencing decline in traditional family farming and shifts to new forms of land management.

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